

THE NATIONAL TOXICS INVENTORY (NTI)

There were approximately 8.1 million tons of air toxics released to the air in 1993 according to EPA's National Toxics Inventory (NTI). Air toxics are emitted from all types of manmade sources, including large industrial sources, small stationary sources, and mobile sources. As shown in Figure 33, the 1993 NTI estimates of the major source (sources of hazardous air pollutants (HAPs) emitting more than 10 tons per year of an individual HAP or 25 tons per year of aggregate emissions of HAPs) are approximately 61 percent of the national total of all HAP emissions. Area sources contribute approximately 18 percent to the 1993 national emissions of HAPs, and mobile sources contribute 21 percent. Figure 34 illustrates the range in percent contributions of point, area, and mobile source emissions for selected states. Point source contributions ranged from 81 percent (Alabama) to 16% (Hawaii). Area source contributions ranged from 48 percent (Idaho) to 9 percent (Alabama), and mobile source contributions ranged from 55 percent (Hawaii) to 10 percent (Alabama). Figure 35 presents the geographic distribution of 1993 emissions of HAPs by mass. This figure shows total emissions of HAPs for each state and does not necessarily imply relative health risk by exposure to HAPs by state. The categorization of pollutant emissions as high, medium, and low provides a rough sense of the distribution of emissions. In addition, some states may show relatively high emissions as a result of very large emissions from a few facilities, or show relatively high emissions as a result of very small emissions from a large number of smaller point sources.

The 1993 NTI includes emissions information for 166 of the 188 HAPs from 958 point-, area-, and mobile-source categories. Emissions data from the Toxic Release Inventory (TRI) were used as the foundation of the 1993 NTI. The TRI data, however, are significantly limited in several key aspects as a tool for comprehensively characterizing the scope of the air toxics issue. For example, TRI does not include estimates of air toxics emissions from mobile and area sources. The 1993 NTI suggests that the TRI data alone represent less than 10 percent (760,000 tons/year) of the total NTI emissions. Therefore, the NTI has incorporated other data to create a more complete inventory, as discussed below.

Data from EPA studies, such as the Mercury Report, inventories for Clean Air Act sections 112c(6) and 112(k), and data collected during development of Maximum Achievable Control Technology (MACT) Standards under section 112(d), supplement the TRI data in the NTI. The use of non-TRI data is particularly important for providing estimates of area- and mobile-source contributions to total HAP emissions.

THE 1996 NTI

The EPA updated the 1993 NTI and is currently compiling the 1996 NTI. The 1993 and 1996 NTIs incorporate state data and local HAP inventories. In the 1996 NTI, thirty-eight state and local agencies (representing 34 states) submitted a HAP inventory for inclusion in the NTI. Figure 36 shows the states that submitted a 1996 HAP inventory to EPA. Thus, the state and local HAP inventories are the foundation of the 1996 NTI. The 1993 NTI data are allocated at

the county level, whereas, the 1996 NTI data are allocated at the facility level for point (major) sources.

Draft estimates of mobile on-road and point (major) source emissions are available in the 1996 NTI. Area and non-road mobile emissions estimates will be available in spring, 1999. Development of the 1996 NTI is continuing and additional information concerning emissions from sources regulated under the MACT program will be added, as well as additional state and local emissions data submitted as part of Title V operating permit surveys of the Act.

Table 1 compares 1993 and 1996 mobile on-road source emissions. Mobile on-road emissions decreased by 258,000 tons as a result of regulations requiring the use of reformulated fuels and other mobile source programs. Table 2 lists HAPs emitted from on-road gasoline vehicles that have emission estimates in the 1993 and 1996 NTIs. Although the EPA addresses stationary and mobile sources under separate regulatory authorities and through separate offices, these emissions are being evaluated together in EPA's air toxics strategies. Section 202(l) requires EPA to regulate the emissions of hazardous air pollutants from motor vehicles. EPA's reformulated gasoline program requires a 15% year round reduction in the total mass of toxic emissions. EPA's Office of Mobile Sources has provided estimation methodologies for the mobile source-emitted HAPs included in the NTI.

Point source emissions are projected to decrease by 660,000 tons from 1993 to 1998 as a result of MACT standards. Table 3 presents a summary of emission reductions from full implementation of MACT standards.

The EPA is compiling the NTI every three years (1993, 1996, 1999, etc.) The emissions estimates in the NTI, regardless of base year, have several caveats. The NTI is a repository of HAP emissions data from various sources, and it varies in quality and completeness among source categories, geographic location, and estimation methods. As the process of compiling this data is evolving, estimates will likely improve. However, as new base year inventories are compiled and source category and emissions calculation methods change, emissions totals are likely to change.

Table 1. Comparison of 1993 to 1996 Emission Reductions for Mobile On-Road Gasoline Vehicles

1993 Total HAP Emissions (tons per year)	1996 Total HAP Emissions (tons per year)	Emissions Reduction (tons per year)
1,571,000	1,313,000	258,000 = 16%

Table 2. HAPs Emitted From On-Road Gasoline Vehicles

Acetaldehyde
 Acrolein
 Arsenic and compounds
 Benzene
 1,3-Butadiene
 Chromium and compounds
 Dioxins/Furans (defined as TEQ)
 Ethylbenzene
 Formaldehyde
 n-Hexane
 Lead and compounds
 Manganese and compounds
 Mercury and compounds
 Methyl tert-butyl ether^a
 Nickel and compounds
 Polycyclic Organic Matter (defined as 16-PAH)
 Propionaldehyde
 Styrene
 Toluene
 Xylenes (o,m,p)

^anot available for the 1993 inventory year

Table 3. Emission Reductions from Full Implementation of MACT Standards

Compliance Date	MACT Source Category	HAPs Emitted	Total Baseline Pre-MACT Emissions ^b	Emissions Reduction ^b	Total Post-MACT Emissions ^b
10/27/93	Coke Ovens: Charging, Top side, and Door leaks ^a	Benzene Coke oven gases Polycyclic Organic Matter	1,760 tpy	80 % = 1,408 tpy	352 tpy
9/23/96	Perchloroethylene Dry Cleaning Facilities	Perchloroethylene	95,700 tpy	56 % = 53,592 tpy	42,108 tpy
3/8/96	Industrial Process Cooling Towers	Chromium & compounds	25 tpy	>99 %	0
12/15/96 (w/o new control device), 12/15/97 (w/ new control device)	Magnetic Tape Manufacturing	Methyl ethyl ketone Methyl isobutyl ketone Toluene	4,470 tpy	51 % = 2,300 tpy	2,170 tpy
1/25/96 (decorative) 1/25/97 (hard & anodizing)	Chrome Electroplating: Decorative Hard Anodizing	Chromium & compounds	11.5 160 3.9 = 175.4 tpy	99 % = 173 tpy	2 tpy
4/22/97	HON	Total unspciated HAPs	573,000 tpy	90 % = 515,700 tpy	57,300 tpy
11/21/97	Wood Furniture Manufacturing Operations	Glycol ethers Methyl ethyl ketone Methyl isobutyl ketone Toluene Xylenes (o,m,p)	170 tpy	60 % = 102 tpy	68 tpy
12/2/97	Halogenated Solvent Cleaning	Methyl chloroform Methylene chloride Tetrachloroethylene Trichloroethylene	142,000 tpy	60 % = 85,200 tpy	56,800 tpy
12/15/97	Gasoline Distribution	Benzene Cumene Ethyl benzene Ethylene dichloride Hexane Lead & compounds Methyl tert-butyl ether Polycyclic Organic Matter Toluene 2,2,4-Trimethylpentane Xylenes (o,m,p)	44,200 tpy	5 % = 2,210 tpy	41,990 tpy

Table 3- Continued. Emission Reductions from Full Implementation of MACT Standards

Compliance Date	MACT Source Category	HAPs Emitted	Total Baseline Pre-MACT Emissions ^b	Emissions Reduction ^b	Total Post-MACT Emissions ^b
12/16/97	Shipbuilding and Ship Repair Facilities	Acrylonitrile Chlorine Chromium & compounds Diethanolamine Ethylbenzene Ethylene dichloride Ethylene glycol Glycol ethers Lead & compounds Manganese & compounds Methyl chloroform Methyl ethyl ketone Methyl isobutyl ketone Methylene chloride Nickel & compounds Polycyclic Organic Matter Toluene Trichloroethylene Xylenes (o,m,p)	7,890 tpy	24 % = 1,894 tpy	5,996 tpy
12/23/97	Secondary Lead Smelting	Acetaldehyde Acetophenone Acrolein Acrylonitrile Antimony & compounds Arsenic & compounds Benzene Biphenyl Bis (2-ethylhexyl)phthalate 1,3-Butadiene Cadmium & compounds Carbon disulfide Chlorobenzene Chloroform Chromium & compounds Cumene Dibutyl phthalate 1,3-Dichloropropene Dioxins/Furans Ethyl carbamate Ethylbenzene Formaldehyde Hexane Lead & compounds Manganese & compounds Mercury & compounds Methyl bromide Methyl chloride Methyl ethyl ketone Methyl iodide Methylene chloride Nickel & compounds Phenol Polycyclic Organic Matter Propionaldehyde Styrene 1,1,2,2-Tetrachloroethane Toluene Trichloroethylene Xylenes(o,m,p)	2,030 tpy	72 % = 1,421 tpy	609 tpy

^a Due to the various criteria for implementation dates for coke ovens, the date shown here is the Effective Date.

^b tons per year is abbreviated as tpy.